

THAT WHICH IS CLAIMED IS:

1. An isolated polynucleotide encoding ROC1, said polynucleotide selected from the group consisting of:
- (a) DNA having the nucleotide sequence of **SEQ ID NO:1**;
 - (b) polynucleotides that hybridize to DNA of (a) above under stringent conditions and which encode ROC1; and
 - (c) polynucleotides that differ from the DNA of (a) or (b) above due to the degeneracy of the genetic code, and that encode ROC1 encoded by a DNA of (a) or (b) above.
2. An isolated polynucleotide according to Claim 1 that encodes ROC1.
3. An isolated polynucleotide according to Claim 1 that encodes ROC1 having the amino acid sequence given herein as **SEQ ID NO:2**.
4. An isolated polynucleotide according to Claim 1 which is a DNA having the nucleotide sequence given herein as **SEQ ID NO:1**.
5. An expression vector comprising a nucleic acid according to Claim 1.
6. A cell containing an expression vector according to Claim 5.
7. A cell containing an expression vector according to Claim 6 and capable of expressing ROC1.
8. An isolated protein encoded by a polynucleotide according to Claim 1.
9. An isolated protein encoded by a polynucleotide of Claim 1 that has the amino acid sequence given herein as **SEQ ID NO:2**.

10. An antibody which specifically binds to a protein encoded by a polynucleotide according to Claim 1.

11. An antibody according to Claim 10, wherein said antibody is a polyclonal antibody.

12. An antibody according to Claim 10, wherein said antibody is a monoclonal antibody.

13. An antisense oligonucleotide complementary to a polynucleotide of Claim 1 and having a length sufficient to hybridize thereto under physiological conditions.

14. A DNA encoding an antisense oligonucleotide of Claim 13.

15. An expression vector comprising an antisense oligonucleotide according to Claim 13.

16. A method for producing a protein comprising the amino acid sequence of **SEQ ID NO:2**, or a fragment thereof, comprising
(a) culturing a host cell containing an expression vector containing at least a fragment of the polynucleotide sequence encoding ROC1 under conditions suitable for the expression of the protein; and
(b) recovering the protein from the host cell culture.

10 17. A method for detecting a polynucleotide which encodes ROC1 in a biological sample comprising:

(a) hybridizing the complement of the polynucleotide sequence which encodes **SEQ ID NO:1** to nucleic acid material of a biological sample, thereby forming a hybridization complex; and

15 b) detecting the hybridization complex, wherein the presence of the complex correlates with the presence of a polynucleotide encoding ROC1 in the biological sample.

18. An isolated polynucleotide encoding ROC2, said polynucleotide selected from the group consisting of:

(a) DNA having the nucleotide sequence of **SEQ ID NO:3**;

5 (b) polynucleotides that hybridize to DNA of (a) above under stringent conditions and which encode ROC2; and

(c) polynucleotides that differ from the DNA of (a) or (b) above due to the degeneracy of the genetic code, and that encode ROC2 encoded by a DNA of (a) or (b) above.

19. An isolated polynucleotide according to Claim 18 that encodes ROC2.

20. An isolated polynucleotide according to Claim 18 that encodes ROC2 having the amino acid sequence given herein as **SEQ ID NO:4**.

21. An isolated polynucleotide according to Claim 18 which is a DNA having the nucleotide sequence given herein as **SEQ ID NO:3**.

22. An expression vector comprising a nucleic acid according to Claim 18.

23. A cell containing an expression vector according to Claim 22.

24. A cell containing an expression vector according to Claim 22 and capable of expressing ROC1.

25. An isolated protein encoded by a polynucleotide according to Claim 18.

26. An isolated protein encoded by a polynucleotide according to Claim 18 that has the amino acid sequence given herein as **SEQ ID NO:4**.

27. An antibody which specifically binds to a protein encoded by a polynucleotide according to Claim 18.

28. An antibody according to Claim 27, wherein said antibody is a polyclonal antibody.

29. An antibody according to Claim 27, wherein said antibody is a monoclonal antibody.

30. An antisense oligonucleotide complementary to a polynucleotide of Claim 18 and having a length sufficient to hybridize thereto under physiological conditions.

31. A DNA encoding an antisense oligonucleotide of Claim 30.

32. An expression vector comprising an antisense oligonucleotide according to Claim 30.

33. A method for producing a protein comprising the amino acid sequence of **SEQ ID NO:4**, or a fragment thereof, comprising
(a) culturing a host cell containing an expression vector containing at least a fragment of the polynucleotide sequence encoding ROC2 under conditions suitable for the expression of the protein; and
(b) recovering the protein from the host cell culture.

34. A method for detecting a polynucleotide which encodes ROC2 in a biological sample comprising:

(a) hybridizing the complement of the polynucleotide sequence which encodes **SEQ ID NO:3** to nucleic acid material of a biological sample, thereby forming a hybridization complex; and

b) detecting the hybridization complex, wherein the presence of the complex correlates with the presence of a polynucleotide encoding ROC2 in the biological sample.

35. A method for screening for a bioactive agent capable of binding to a ROC protein, said method comprising:

- a) combining a ROC protein and a candidate bioactive agent; and
- b) determining the binding of said candidate bioactive agent to said ROC

5 protein.

36. The method of Claim 35 wherein the ROC protein is ROC1.

37. The method of Claim 35 wherein the ROC protein is ROC2.

38. A method for screening for a bioactive agent capable of interfering with the binding of a ROC proteins and a cullin protein, said method comprising:

- a) combining a ROC protein, a candidate bioactive agent and a cullin protein; and
- b) determining the binding of said ROC protein and said cullin protein.

5

39. The method of Claim 38 wherein the ROC protein is ROC1.

40. The method of Claim 38 wherein the ROC protein is ROC2.

41. The method of Claim 38 wherein the cullin protein is selected from the group consisting of cullin 1, cullin 2, cullin 3, cullin 4A and cullin 5.

42. A method for screening for a bioactive agent capable of modulating the activity of a ROC protein, said method comprising:

- a) combining a ROC protein and a candidate bioactive agent; and
- b) determining the effect of said candidate bioactive agent on the activity of

5 said ROC protein.

43. The method of Claim 42 wherein the ROC protein is ROC1.

44. The method of Claim 42 wherein the ROC protein is ROC2.

